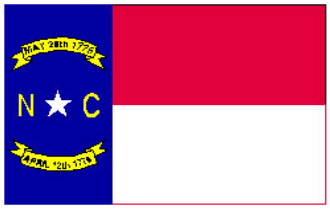
NOAA Research in North Carolina



NC-1 through12 (Based in Raleigh - serves the entire state)

National Sea Grant College Program
North Carolina Sea Grant

North Carolina Sea Grant, part of the National Sea Grant College Program, is a statewide network of research, education and outreach efforts that provide science-based solutions to coastal issues. Recent research projects have targeted aquaculture and seafood technology, blue crab and finish stocks, estuarine dynamics including *Pfiesteria*, shoreline erosion, water quality, and assessment of local environmental knowledge. Citizens, industry and policymakers are kept informed on issues relating to seafood quality and safety, recreational and commercial fishing, coastal hazard mitigation, etc. through a 15-member extension program. Communications efforts include the award-winning *Coastwatch* magazine, as well as newsletters, books and videos. North Carolina universities and institutions that received funding in FY 2001 through the North Carolina Sea Grant Program include East Carolina University, North Carolina State University, and the University of North Carolina campuses at Chapel Hill, Wilmington and Greensboro. In FY 2001, North Carolina Sea Grant projects received funding of approximately $2.14 million from the National Sea Grant College Program, including a number of projects selected through national competitions. For more information please visit http://www.ncsu.edu/seagrant/

NC-1 through 12 (Statewide)

Climate and Global Change Program

NOAA is responsible for providing climate information to the nation in order to prepare and protect climate sensitive sectors of society and the economy. To carry out this mission, NOAA's Climate and Global Change Program conducts focused scientific research to understand and predict variations of climate. The program is comprised of a number of research elements, each focusing on a specific aspect of climate variability. Taken together, this research contributes to improved predictions and assessments of the effects of climate variability and change on different environments over a continuum of time scales from season to season, year to year, and over the course of a decade and beyond. This research is accomplished through the strong support of the academic and private sectors, as well as NOAA and other federal laboratories. In FY 2001, NOAA's Climate and Global Change Program provided approximately $878,700 in support of climate research in the State of North Carolina. For more information please visit http://www.ogp.noaa.gov

NC-1 (Research Triangle Park)

Air Resources Laboratory
Atmospheric Sciences Modeling Division

NOAA's Air Resources Laboratory (ARL) carries out research on processes that affect the quality of the atmosphere, primarily in the context of air pollution, deposition, and emergency preparedness. Much of this work is in support of other agencies such as the Department of Energy, the Environmental Protection Agency, and the Department of Defense. ARL conducts research and analyses at six locations, including Research Triangle Park. This division of the laboratory develops predictive models on local, regional, and global scales, for assessing changes in air quality and air pollution exposure, as affected by ecosystem management and regulations. This work is primarily designed to support and develop effective strategies for attainment and maintenance of ambient air quality standards. For more information please visit http://www.epa.gov/asmdnerl/

NC-1, 3, and 7 (coastline)

Atlantic Oceanographic and Meteorological Laboratory
Hurricane Research

The Atlantic Oceanographic and Meteorological Laboratory's Hurricane Research Division (HRD) conducts an annual field program during peak hurricane season, flying NOAA's two WP-3D Hurricane Hunter aircraft into all hurricanes threatening US coastlines. Dropsondes and onboard radar are used to profile hurricane winds and storm structure. HRD scientists then transmit real-time information to the National Hurricane Center (NHC) at the Tropical Prediction Center, one of NOAA's National Centers for Environmental Prediction. An HRD workstation at NHC processes the aircraft data to generate products for hurricane specialists. NOAA's G-IV jet is also used in the field program to profile wind currents surrounding and influencing the storm's track. HRD scientists incorporate these and other data to create wind analyses of hurricanes. These analyses are crucial in identifying regions of strong winds in the storm and are distributed to local emergency managers for hurricane warning and evacuation determinations. HRD scientists are also studying the characteristics of hurricane winds before and after landfall to help determine expected wind impacts as a hurricane moves over land. For more information please visit http://www.aoml.noaa.gov/hrd/

NC-3 (Duck and New Bern)

Forecast Systems Laboratory
GPS Meteorological Observing Systems

NOAA's Forecast Systems Laboratory (FSL) operates a rapidly expanding network of GPS Meteorological (GPS-Met) Observing Systems to monitor the total quantity of precipitable water vapor in the atmosphere. Currently, there are 93 systems over the contiguous 48 states and Alaska, and plans are being made to extend these observations to Hawaii, Puerto Rico, the Caribbean Islands, and Central America. Water vapor is an important but under-observed component of the atmosphere that plays a major role in severe weather events and the global climate system. GPS-Met systems provide accurate water vapor measurements under all weather conditions, including thick cloud cover and precipitation, and do so at very low cost. The network is being developed by FSL in

cooperation with federal, state and local government agencies, universities, and the private sector. The GPS stations provide high-accuracy surveying and navigation services for National defense, automated agriculture, safe land and marine transportation, government infrastructure management, and 911 emergency response services. Fortuitously, these systems can also be used for meteorology with the addition of surface weather sensors. GPS-Met systems located in North Carolina include one site operated by NOAA near Duck, and one operated by the U.S. Department of Transportation near New Bern. For more information please visit http://www.gpsmet.noaa.gov/jsp/index.jsp

NC-7 (Wilmington)

Ocean Exploration

In 2001, with a $4 million appropriation from Congress, NOAA launched a systematic, strategic effort through the Office of Ocean Exploration to search and investigate the oceans for the purpose of discovery. The University of North Carolina at Wilmington participated in the Deep East voyage. Conducted during September and October of 2001, Deep East scientists explored three regions of the Atlantic Ocean stretching from Maine to Georgia. For more information please visit http://www.oceanexplorer.noaa.gov

NC-7 (Wilmington)

National Undersea Research Program
National Undersea Research Center for the Southeastern U.S. and Gulf of Mexico

The National Undersea Research Center for the Southeastern U.S. and Gulf of Mexico is located at the University of North Carolina at Wilmington. It is one of six regional centers supported by the National Undersea Research Program. The center supports and conducts research throughout the South Atlantic Bight, Florida Keys, and Gulf of Mexico. The Center provides research support for in situ oceanography conducted by divers, submersibles and remotely operated vehicles. Key research includes studies of the health of coastal reef systems, studies of marine fisheries population dynamics/habitat associations/recruitment processes, support of research on lithospheric resources and processes (including those related to offshore oil drilling, gas hydrates, climate change, sea level history, and sea floor evolution), and carbon cycling as it concerns the air-sea interaction in global warming. The Center currently supports Aquarius 2000, the world's only undersea laboratory. Located 20 meters below the surface in the Florida Keys National Marine Sanctuary, Aquarius serves as laboratory and habitat for crews of aquanaut-scientists who stay for up to two weeks at a time conducting research in the nearby coral reef ecosystem. In FY 2001, the Center at Wilmington received funding of $2.64 million. For more information please visit http://www.uncwil.edu/nurc/

NC-11 (Asheville)

Climate Observations and Services Initiative
Climate Reference Network

The U.S. Climate Reference Network (CRN) is a network of new climate stations now being developed by the National Climatic Data Center as part of NOAA's Climate Observations and

Services Initiative. The Air Resources Laboratory's Atmospheric Turbulence and Diffusion Division in Oak Ridge, Tennessee, is heavily involved with the development, deployment, and maintenance of the network. The primary goal of the CRN is to provide long-term high-quality climate observations and records of surface air temperature and precipitation with minimal time-dependent biases affecting the interpretation of decadal to centennial climate variability and change. The CRN will provide the Nation with a first-class long-term (50-100 years) observing network that will serve as the Nation's benchmark Climate Reference Network. The CRN will also provide the United States with a network that meets the requirements of the international Global Climate Observing System. Data from the CRN will be used in climate monitoring activities and for placing current anomalies into historical perspective. Data will also be used to provide the best possible information about long-term changes in surface air temperature and precipitation, including means and extremes. These data will be distributed hourly to National Weather Service sites via NOAAPort and posted online for no-cost access by anyone worldwide. The first pair of stations, located just west of Asheville, began operating in FY 2001. CRN sites are also currently deployed in New Hampshire, Nebraska, Montana, Oklahoma, Rhode Island, Illinois, and Tennessee. Within the next 5 years there will be a total of 250 stations spread throughout the United States. For more information please visit http://lwf.ncdc.noaa.gov/oa/climate/research/crn/crnmain.html

NC-11 (Asheville)

Climate and Global Change Program
National Climatic Data Center

NOAA's Climate and Global Change Program provides support for NOAA's National Climatic Data Center (NCDC) located in Asheville. NCDC develops both national and global data sets that are used by both government and the private sector to maximize the resource provided by our climate and minimize the risks of climate variability and weather extremes. The Center has a statutory mission to describe the climate of the United States. NCDC's climate data have been used in a variety of applications including agriculture, air quality, construction, education, energy, engineering, forestry, health, insurance, landscape design, livestock management, manufacturing, recreation and tourism, retailing, transportation, and water resources management among other areas. NCDC's data and products fulfill needs ranging from building codes to power plant and space shuttle design. For more information please visit http://www.ncdc.noaa.gov

NC-11 (Asheville)

Climate Observations and Services Program
Network Performance Indicators

Time-dependent biases in observational networks adversely impact detection of climate change and variability with confidence. NOAA does not routinely monitor its network for these biases. When problems with the network are identified, it is often too late to prevent serious degradations. As a result, NOAA and others have had to invest significant time, energy, and resources on reconstituting data. NOAA's Climate Observations and Services Program has provided $242,800 to support a project at the National Climatic Data Center in Asheville, to develop and refine statistical tests to detect these biases in near-real time. For more information please visit http://www.ncdc.noaa.gov